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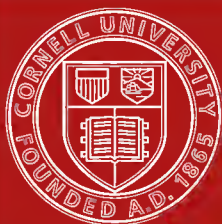
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BULLETIN NO. 102.

JANUARY 1908

DEPARTMENT OF ENTOMOLOGY.

College Station, Texas.



Honey Bee on Horse-mint.

TEXAS HONEY PLANTS.

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Assistant State Entomologist and Apiarist.

Postoffice,

COLLEGE STATION, BRAZOS COUNTY, TEXAS.

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P R E F A C E .

This preliminary bulletin on Texas Honey Plants represents work of the Department of Entomology dating through the office tenures of Professors Mally, Newell, Sanderson and Conradi. They each have authorized and aided in the collection of the flora and data contained in this publication.

To Mr. Louis H. Scholl, of New Braunfels, Texas, Assistant and Apiarist from 1902 until 1906, the Department is directly indebted for the material contained herein, except as is otherwise designated.

Mr. Ernest Scholl, now Assistant and Apiarist, has furnished material as shown herein. He is now working on a continuation of the subject.

Mr. D. C. Milam, of Uvalde, formerly Foul Brood Inspector, has also contributed, as is shown.

The main body of the work, however, has been accomplished through the services of Mr. Louis H. Scholl, and much credit is due him, since he has done more in this Department, and perhaps more than any other person in helping to build up the Bee Industry of Texas. His data are followed by this mark *

INTRODUCTION.

This publication treats of many of the Texas honey plants in a brief technical manner. In addition, wherever possible, the common name is used in connection with the description.

The sequence followed by Coulter in his *Botany of South West Texas* is herein mainly followed. In some instances quotations from Small's *Botany of Texas* were used, as is shown in the publication. The plants are discussed by families.

Not only is the honey producing qualities of the plants mentioned, but frequent mention is also made of the respective quality and yield of pollen and propolis. Data are included in many instances concerning the weather conditions and its effects upon the yield of certain plants.

It is hoped that this will be a great help to apiarists in selecting locations for bees, since the value of bees depends entirely on the environment under which they may be placed. Again it may help in selecting certain plants to be planted that might prove to be very beneficial to an established apiary.

The geographical distribution is given in a general brief way, so that one is less apt to be confused concerning the abundance in nature of certain plants. In this connection it must be remembered, however, that on account of extended cultivation in Texas, some of the common wild plants are becoming less numerous than formerly, while cultivated varieties are becoming more common.

Two indices are contained in this bulletin. The first contains all the common or vernacular names, and the second contains the latin or technical names. The latter is complete, since some plants are known only by the technical appellation.

TRIPLE-LEAFED BARBERRY. *Berberis trifoliata* Moric.

Barberry family. Berberideae.

"On gravelly slopes and foothills from the Gulf coast to the Limpia mountains." (Coulter). Hunter, gravelly hills; honey yield abundant, also pollen; fine for early brood rearing. January and February.*

PRICKLY POPPY. *Argemone platyceras* (Link. and Otto.)

Poppy family. Papaveraceae.

"Abundant in valleys and along dry hillsides." (Coulter). Roadsides, waste fields and prairies. Honey yield unimportant, but abundance of pollen during the dearth of summer. May and July.*

This plant is abundant along the Brazos valley. Bees work heavily on it in June, carrying heavy loads of pollen, which they store in nearly every comb, thus making it disagreeable in the honey combs sometimes." (E. Scholl).

POPPY. *Papaver rhoeas* L.

Poppy family. Papaveraceae.

Cultivated in flower gardens. Honey yield not important and plants few. May.*

PEPPERGRASS. PEPPERWORT. *Lepidium Virginicum* L.

Mustard family. Cruciferae.

"In all situations, Quebec to Minnesota, Kansas, Florida, Texas and Mexico. Naturalized in Europe." (Small). Found in all kinds of places; honey yield not important; some pollen. June to August.*

GREGGIA. *Greggia camporum* Gray.

Mustard family. Cruciferae.

"Mountains of Western Texas." (Coulter). Honey yield early but not abundant; also pollen helps early brood rearing. Hunter; waste fields and fertile prairies. Honey yield early, but not abundant; also pollen; helps early brood rearing. February.*

COMMON TURNIP. *Brassica rapa* L.

Mustard family. Cruciferae.

Cultivated and sometimes escaped; bees work on the blossoms, honey and pollen. June and July.*

BLACK MUSTARD. *Brassica nigra* Koch.

Mustard family. Cruciferae.

Cultivated and escaped; bees sometimes busy on it. June and July.*

MIGNONETTE. *Reseda odorata* L.

Mignonette family. Resedaceae.

College: cultivated on Aplary Experimental plats. Honey yield good; plants not plentiful enough for surplus. June and July.*

PORTULACA. *Portulaca grandiflora* Hook.

Purslane family. Portulacaceae.

Cultivated in ornamental flower beds. Honey yield good as it comes during time when few others in bloom; also abundance of highly colored pollen, red, orange and yellows. June until frost.*

SALT CEDAR. *Tamarix gallica* L.

Tamarisc family. Tamariscineae.

"A common European Mediterranean shrub which seems to have escaped in many places in Texas." (Coulter). "On roadsides, in thickets and waste places; warmer parts of Southern United States, naturalized from Southern Europe." (Small). College Station; cultivated ornamental shrub bees worked well on it, but number of trees scarce. May and June.*

FRINGED POPPY MALLOW. *Callirrhoe digitata* Nutt.

Mallow family. Malvaceae.

"Common on prairies and in valleys." (Coulter). Hunter; prairies and lowlands. Honey yield not important; some pollen. May and June. A good pollen yielder during May at College Station.*

SPANISH APPLE. *Malvaviscus drummondii*. Torr & Gray.

Mallow family. Malvaceae.

From Rio Grande to the Colorado and Northeastward." (Coulter). In lowlands and along streams. June and July.* Plentiful along Comal and Guadalupe rivers, New Braunfels, Texas. Not important." (E. Scholl).

ROSE OF SHARON. SHRUBBY ALTHAEA. *Hibiscus Syriacus* L.

Mallow family. Malvaceae.

"In various situations New Jersey and Pennsylvania to Florida and Texas." (Small). Cultivated ornamental, in gardens and parks; honey yield not important and plants few, but bees work busily on it; honey and pollen. May to Sept.*

SPRING SIDA. *Sida spinosa* L.

Mallow family. Malvaceae.

"In cultivated grounds, waste places on roadsides, New York to Iowa, Florida and Texas. Widely distributed in the tropics." (Small). Waste places, fields and along roads; some honey and pollen; not important. June to August.*

NARROW-LEAFED SIDA. *Sida angustifolia* Lam.

Mallow family. Malvaceae.

"In dry soil Texas to Arizona; also in Mexico and tropical America."

(Small). In dry soils; bees found upon it; yields pollen. June to August.*

COTTON. *Gossypium herbaceum* L.

Mallow family. Malvaceae.

Cultivated staple crop in the fields for fibre. Honey yield good, steady flow till frost, honey white and of good quality. Main source throughout cotton belt. Nectar glands on ribs of leaves and on bracts of buds, blooms and bolls. June to frost.*

JAPANESE VARNISH TREE. *Firmiana platinifolia* (L.) R. Br.

Chocolate family. Buettneriaceae. HBK.

College Station: Cultivated ornamental tree on campus; honey yield very heavy but of short duration some seasons longer. May and June.*

BASSWOOD. AMERICAN LINDEN. *Tilia Americana* L.

Linden family. Tiliaceae.

"A large and handsome tree of the Atlantic States, extending in Texas to the Valley of the San Antonio River." (Coulter). On forests of Eastern Texas, yields large quantities of excellent honey. May and June.*

LARGE-FLOWERED CALTROP. *Tribulus cistoides* L.

Bean-caper family. Zygophyllaeae.

Hunter: in fields and waste lands; honey yield good until noon when flowers close; also much pollen. April, August.*

GREATER CALTROP. *Kallstroemia maxima* (L.) T. & G.

Bean-caper family. Zygophyllaeae.

"*Tribulus maxima*." (Coulter). "Common in dry soil throughout Southern and Western Texas." (Coulter). Hunter: in fields and waste lands. Honey yield good in morning, blossoms closing by noon except in cool weather; good as it comes in the dearth of summer; also abundance of pollen. April to August.*

YELLOW WOOD SORREL. *Oxalis stricta* L.

Geranium family. Geraniaceae.

"Eastern and Southern Texas." (Coulter). Waste soils and open woodlands; not plentiful for bee forage. May, August.*

TOOTH-ACHE TREE. PRICKLY ASH. SEA ASH. PEPPERWOOD.

Xanthoxylum clava-Herculis L.

Rue family. Rutaceae.

"Colorado to Rio Grande." (Coulter). "Along or near the coast, Virginia to Florida, Arkansas and Texas." (Small). Hunter: woodland prairies; honey yield good; bees work busily on it. April, June.*

HOP TREE. *Ptelea trifoliata* L.

Rue family. Rutaceae.

"Throughout Southern and Western Texas." (Coulter). In woodlands and along rivers and creeks. Honey yield good; very good in favorable seasons where abundant. May and July.*

HARDY ORANGE. *Citrus trifoliata* L.

Rue family. Rutaceae.

College: planted for hedges, scarce; honey yield fair for early brood. Bees worked on it abundantly. March.*

TREE OF HEAVEN. *Ailanthus glandulosus* Desf.

Quassia family. Simarubaceae.

"In waste places and along streams, more or less extensively naturalized in the United States and Southern British America. Native of China." (Small). Hunter: cultivated for shade and escaped. Honey yield fair in good seasons, pollen; also nectar glands on leaf blades. April.*

UMBRELLA CHINA TREE. *Melia azedarach* L.

Melia family. Meliaceae.

"A favorite shade tree and extensively naturalized in Central and Southern Texas." (Coulter). Cultivated ornamental shade tree and escaped. Honey yield helps early brood rearing. February, March.*

POSSUM HAW. BEAR BERRY. *Ilex decidua* Walt.

Holly family. Ilicineae.

"A species of Southern States and extending in Texas to the Valley of the San Antonio." (Coulter). College; along lowlands, creeks and streams. Honey yield good but short; in warm spring early and valuable for early brood. March, May.*

YOU PON. *Ilex Caroliniana* Trelease.

Holly family. Ilicineae.

"A species of the Gulf States and extending into Texas. Limit uncertain." (Coulter). Hunter: low woodland thickets; not important. March, April.*

BRASIL WOOD. LOGWOOD. *Condalia obovata* Hook.

Buckthorn family. Rhamneae.

From the Guadalupe to the Rio Grande and west of New Mexico." (Coulter). Hunter: in woodlands, dry soils; honey yield not very important but comes well in dearth of summer. July, August.* "Abundant along Carter's Creek. Honey yield good during May." (E. Scholl).

RATTAN VINE. *Berchemia scandens* Trelease.

Buckthorn family. Rhamneae.

"A species of the Southern States extending into Texas where its western limit is uncertain." (Coulter). Along ravines and low woodlands; honey yield good, giving surplus in favorable years but dark amber colored, used in manufacturing-houses. April.*

COLUMBRINA TEXENSIS. Gray.

Buckthorn family. Rhamnaceae.

"From the Colorado to the Rio Grande westward to New Mexico." (Coulter). Floresville, slopes, adobe hills. Honey yield good but not enough for surplus. Also some pollen. April.*

CULTIVATED WINE GRAPES. *Vitis* (?) (Varieties).

Vine family. Ampelidaceae.

Cultivated in orchards; good for pollen. April, May.*

MOUNTAIN GRAPE. *Vitis monticola* Buckley.

Vine family. Ampelidaceae.

"Peculiar to the hilly limestone regions of Western Texas, not extending to the low country nor to the granite mountains." (Coulter.) Hunter: in woods and forests; honey yield fairly good and pollen valuable for brood rearing. March.*

COW ITCH. *Cissus incisa* Desmoul.

Vine family. Ampelidaceae.

"In shady places from the Colorado to the Rio Grande and westward. An ornamental vine known as "Yerba del buey." (Coulter). Hunter: along fences and edge of thickets; honey yield keeps bees out of mischief during dearth. Surplus where plentiful. April, to August.*

SOAPBERRY. WILD CHINA. *Sapindus marginatus* Willd.

Soapberry family. Sapindaceae.

"Common along creeks throughout Texas from Louisiana to New Mexico and Mexico. Smaller west of the Colorado river." (Coulter). Along rivers and creeks and sometimes along uplands; honey yield good, heavy flow in favorable seasons gives surplus. June.* Evergreen shrub, blooms in April; yields quantities of honey and pollen where enough bushes." (Millam, Uvalde).

COMMON BALLOON VINE. *Cardiospermum Halicacabum* L.

Soapberry family. Sapindaceae.

"Guadalupe to Rio Grande." (Coulter). "In thickets and waste places New Jersey, Missouri, Florida, Texas and tropical America; summer and fall. (Small). Hunter: in creek bottoms; honey yield fair but plants not abundant. April, July.*

MEXICAN BUCKEYE. *Ungnadia speciosa* Endl.

Soapberry family. Sapindaceae.

"Common along rocky valleys and in the mountains from the Valley of the Trinity through Western Texas to New Mexico." (Coulter). Hunter: mountainous woodlands. Honey yield good in dearth but not plentiful. July."

DWARF SUMACH. *Rhus copallina* L.

Sumach family. Anacardiaceae.

"A sumach of the Atlantic States extending through Eastern and Southern Texas to the Rio Grande." (Coulter). Hunter: small shrubby

tree, rocky hillsides and woodland prairies. Honey yield good, giving surplus in favorable seasons depending upon rains. Reported as a honey plant in most of the beekeepers reports received. August.*

GREEN SUMACH. *Rhus virens* Lindh.

Sumach family. Anacardiaceae.

"From the Colorado to the Rio Grande and westward." (Coulter). In stony, hilly woodlands. Bees are some seasons busy on it. October.*

BLUE LUPINE. BLUEBONNET. *Lupinus subcarneus* Hook.

Pulse family. Leguminosae.

"Common lupine of Southern and Western Texas, 'covering fertile slopes with a carpet of purple blue.' (Harvard), as early as March." (Coulter). Hunter: places in open woodlands. Honey yield good; also pollen of very bright and orange colors. March, April.*

ALFALFA OR LUCERNE. *Medicago sativa* L.

Pulse family. Leguminosae.

"An extensively cultivated forage plant which has long been an introduced plant in Southern and Western Texas." (Coulter). Cultivated for hay crops; honey yield fair; early summer and fall; better in irrigated regions. May, August.* "Large number of bees were seen on it at New Braunfels, Texas. June 19th, 1907. A good thing in North Texas." (E. Scholl).

MEDICK. BURR CLOVER. *Medicago denticulata* Willd.

Pulse family. Leguminosae.

"Naturalized in Western Texas." (Coulter). College: abundant on campus lawns. Honey yield sparingly in summer; not important. February to May.*

SWEET CLOVER. *Melilotus alba* Desv.

Pulse family. Leguminosae.

Distribution not definite. Cultivated and along fence rows; honey yield good and of fine quality; scarce and should be cultivated for honey. May to October.* "An important honey plant in North Texas." (E. Scholl).

YELLOW SWEET CLOVER. *Melilotus officinalis* (L) Lam.

Pulse family. Leguminosae.

Colorado along roadsides, escaped. Honey yield good; claimed to be superior to and earlier than *M. alba* by beemen. Should be cultivated on the poor soils of Texas. April to September.*

RED CLOVER. *Trifolium pratense* L.

Pulse family. Leguminosae.

College Station: cultivated on experimental plats. Blooms in summer; not important, not much grown and deep corollas. June.*

WHITE CLOVER. *Trifolium repens* L.

Pulse family. Leguminosae.

"May be found wild in Texas." (Coulter). Along roadsides and on lawns. Cultivated at College, but did not grow as conditions were too dry. Honey yield good and one of main sources in States north of Texas. June, July.*

EYSENHARDTIA. *Eysenhardtia amorphoides*. H B K.

Pulse family. Leguminosae.

"Throughout Southern and Western Texas, South of the Colorado." (Coulter). Hunter: on light soils and woodlands and known as "Rock Brush" by beemen. Honey yield abundant. Blooming after heavy rains. Honey fine quality. March, May.*

BLACK LOCUST. *Robinia Pseudacacia* L.

Pulse family. Leguminosae.

"Native from Pennsylvania to Iowa, Georgia and Indian Territory. Also naturalized in the northeastern part of North America." (Small). College: cultivated on campus; honey yield good if no cold weather; bees work on it abundantly. March, April.*

CASSIA. *Daubentonia longifolia* (Cav.) DC.

Pulse family. Leguminosae.

Low and damp places; sandy soils; bees on it frequently but apparently of little value. July, September.*

MEXICAN GROUND-PLUM. *Astragalus Mexicanus*. A. DC.

Pulse family. Leguminosae.

"Prairies throughout Texas." (Coulter). Hunter: in open prairies honey yield abundant when season is favorable; drouth injures it. June.*

COW PEA. *Vigna* (sp.)

Pulse family. Leguminosae.

Honey yield good; fair quality, light color. Cultivated for forage crops and for enriching soils. June, August.*

COW PEA. *Vigna Sinensis* (L) Endl. (Var. ?).

Pulse family. Leguminosae.

Cultivated for forage crops and for enriching soils; honey yield good; fair quality, light color. June, August.*

JAPANESE DELCHOS. *Dolichos lablab* L.

Pulse family. Leguminosae.

Cultivated in Apiary Experimental plats; no bees on it; other plants in bloom. June, August.*

GARDEN PEA. *Pisum sativum* L.

Pulse family. Leguminosae.

Hunter: cultivated widely; honey yield unimportant, some pollen; not visited much by bees. March, April.*

RED BUD. *Cercis occidentalis* Torr.

Pulse family. Leguminosae.

"Far Western and North Mexican species extending into Western Texas." (Coulter). Aids early brood rearing. March.*

RED BUD. JUDAS TREE. *Cercis Canadensis* L.

Pulse family. Leguminosae.

"In rich soil Ontario to Minnesota, New Jersey, Florida and Texas." (small). Hunter: in woodlands. Honey yield fair, aiding in early brood rearing. March, April.*

RETAMA. *Parkinsonia aculeata* L.

Pulse family. Leguminosae.

"Throughout Southern and Western Texas." (Coulter). In sandy soils and low swamps. Blooms spring and throughout summer; bees work on it more or less all summer. May, Sept.*

HONEY LOCUST. *Gleditschia triacanthos* L.

Pulse family. Leguminosae.

"An Atlantic species extending at least to the Valley of the Brazos river and common in cultivation." (Coulter). College Station: Along ravines and valleys; very heavy honey yield but of short duration. April.*

MEZQUIT TREE. SCREW BEAN. *Prosopis juliflora* DC.

Pulse family. Leguminosae.

The chief woody plant of the wooded table-lands and high valleys throughout southern and western Texas, often forming impenetrable thickets." (Coulter) Hunter: throughout the black land prairies; honey yield abundant, main source in State, good light honey. April, and again in June.*

***Neptunia lutea* Benth.**

Pulse family. Leguminosae.

"In Eastern and Southern Texas, extending as far up the Rio Grande as Eagle Pass." (Coulter). College, open prairies; not plentiful, bees rarely found on it; some pollen. May.*

SENSITIVE BRIAR. *Schrankia angustata* Torr. and Gray.

Pulse family. Leguminosae.

"Found in Texas as far as San Diego and probably in the San Antonio region." (Coulter). Hunter: open prairies; honey yield not important; plants scarce; pollen. April to September.*

HUISACHE. *Acacia Farnesiana* Willd.

Pulse family. Leguminosae.

"From San Antonio to the Gulf Coast and lower Rio Grande." (Coulter). Very plentiful in richer soil of Southwest Texas; honey yield good for stimulating early brood rearing; also pollen. February, April.*

HUAJILLI. *Acacia Berlandiera* Benth.

Pulse family. Leguminosae.

"From the Nueces to the Rio Grande and west to Devil's River. Common on the bluffs of the lower Rio Grande. (Coulter). On dry and rocky hills in solid masses generally. Honey yield very heavy and main surplus in Southwest Texas; fine quality, white; considered the best honey in Texas in quality. April.*

PARADISE FLOWER. CATSCLAW. DEVILS CLAWS. *Acacia Greggii* Gray.

Pulse family. Leguminosae.

"In dry or rocky soil, Texas, New Mexico." (Small). Floresville: All over Southwest Texas. Honey yield very abundant, a main yielder of fine quality honey. April.*

ROUND-FLOWERED CATSCLAW. *Acacia Roemeriana* Schlecht.

Pulse family. Leguminosae.

"Throughout Texas south of the Colorado and west to El Paso." (Coulter). Hunter: in brushy woodlands; honey yield is heavy, of fine quality, but plants not abundant. April and May.*

***Acacia amentacea* DC.**

Pulse family. Leguminosae.

"From the Guadalupe to the lower Rio Grande and west to the Pecos." (Coulter). Very plentiful throughout Southwest Texas, on prairies. Honey yield of no importance. Bees gather pollen from it occasionally in early summer.*

PLUM. *Prunus domestica* L.

Rose family. Rosaceae.

Hunter: In orchards and escaped. Honey yield good with "fruit bloom." Helps to build up colonies of bees. February.*

WILD PLUM. *Prunus* (sp.)

Rose family. Rosaceae.

College Station: planted on campus. Honey yield good but of short duration. March.*

PEACH. *Amygdalus Persica* L.

Rose family. Rosaceae.

"In waste places and cultivated grounds throughout the United States." (Small). Cultivated in orchards; honey yield good; with "fruit bloom" builds up colonies in spring. January to April.*

BRIDAL WREATH. *Spiraea Virginiana* Britt.

Rose family. Rosaceae.

Cultivated ornamental shrub. Honey yield unimportant; bees sometimes busy on it. March.*

DEW-BERRY. *Rubus trivialis* Michx.

Rose family. Rosaceae.

"A Southern blackberry, apparently common in Eastern, Southern and Western Texas. (Coulter). Common wild, little cultivated; bees on it busy; honey and pollen. February, April.*

ROSE. *Rosa* Tourn.

Cultivated widely; honey yield unimportant; pollen gathered from it sometimes. Spring, summer and fall.*

APPLE. *Malus malus* (L) Britt.

Rose family. Rosaceae.

Cultivated in orchards; honey yield early; helps in brood rearing; good where abundant. March, April.*

PEAR. *Pyrus communis* L.

Rose family. Rosaceae.

A much cultivated fruit tree, important for early honey and pollen. February, March.*

HAWTHORN. WHITE THORN. *Crataegus spathulata* Michx.

Rose family. Rosaceae.

"A species of the Gulf States and extending to the lower Colorado in Texas." (Coulter). In woodlands and creeks; good for honey and pollen. April.*

HAWTHORN. WHITE THORN. *Crataegus arborescens* Ell.

Rose family. Rosaceae.

"A species of the Gulf States and extending to the lower Colorado in Texas." (Coulter). College Station; in woodlands and creek banks; honey yield good, bees found busily on it; also pollen. April.*

CREPE MYRTLE. *Lagerstroemia Indica* L.

Loose strife family. Lythraceae.

"In waste places in and near gardens; widely cultivated and sparingly naturalized from Maryland, Florida and Texas. (Small). Cultivated ornamental on campus; honey yield occasionally good and visited much by bees. June, October.*

JUSSIAEA. *Jussiaea repens* L.

Evening Primrose family. Onagraceae.

"In streams from the San Antonio northward and eastward." (Coulter). In water edge of rivers and lakes. Not affected by drouth; it is important for bees during dearth. June to September.*

JUSSIAEA. *Jussiaea diffusa* Forskl.

Evening Primrose family. Onagraceae.

"In and about ponds, Kentucky to Kansas, Florida and Texas, also in

tropical America and Asia." (Small) In water edge of pasture tanks and pools. Honey yield good; important as it is not affected by drouths but better after rains. June, August.*

Gaura filiformis Small.

Evening Primrose family. Onagraceae.

Sandy soils and along creeks; honey yield good; sometimes yielding surplus in spurts when favorable season and rains prevail. June, October.*

MUSK MELON. *Cucumis Melo* L.

Gourd family. Cucurbitaceae.

Hunter: cultivated. Honey yield good; abundant during dewy mornings. Also pollen. Early summer to fall. Important in melon growing sections, South Texas. July and September.*

CUCUMBER. *Cucumis sativa*.

Gourd family. Cucurbitaceae.

Cultivated; honey yield very good; short duration; pollen; but plants not abundant. April, July.*

WATERMELON. *Citrullus Citrullus* (L) Small.

Gourd family. Cucurbitaceae.

Cultivated: honey yield good; abundant during dewy mornings, also pollen; from early summer to frosts in late autumn. May to October.* "Successful in honey plant plot at College in 1905." (E. Scholl).

WILD GOURD. *Cucurbita foetidissima* HBK.

Gourd family. Cucurbitaceae.

"Abundant in the valleys of Southern and Western Texas." (Coulter). Hunter: in a variety of places. Honey yield not important; plants scattered and few, good for pollen. April, July.*

COMMON PUMPKIN. *Cucurbita pepo* L.

Gourd family. Cucurbitaceae.

Cultivated: not important for honey, but much pollen. May, June.*

COMMON CACTUS OR PRICKLY PEAR. *Opuntia engelmannii* Salm. & Dyk.

Cactus family. Cactaceae.

"Common throughout Southern and Western Texas. This seems to be common "prickly pear" of Texas, though all the flat-jointed opuntias bear that name. The joints are commonly spoken of as "leaves" and form an important food for grazing of animals, under the name of "nopal." The "nopal leaf" is also much used for poultices, etc." (Coulter). Hunter: over entire South-western Texas; Honey yield abundant; sometimes surplus; honey of rank flavor when first stored. May, June.*

DOGWOOD. *Cornus asperifolia* Michx.

Dogwood family. Cornaceae.

"An Eastern species extending to Central Texas where the variety Drum-

mondii is the common form." (Coulter). Lowlands and along banks; honey yield good and bees fairly roam over blossoms, but species not plentiful. March, April.*

ELDER. *Sambucus Canadensis* L.

Honey suckle family. Caprifoliaceae.

"Moist grounds throughout Texas." (Coulter). Along rivers and wet places; honey yield good but not plentiful. April, May.*

BLACK HAW. *Viburnum prunifolium* L.

Honey suckle family. Caprifoliaceae.

"An Atlantic species, extending westward into Texas as far as the valley of the Guadalupe and probably the San Antonio." (Coulter). Hunter: in woodlands and forests. Honey yield good, early, valuable for brood rearing. March, April.*

CORAL BERRY. INDIAN CURRANT. *Symphoricarpos symphoricarpos* (L) MacM.

Honey suckle family. Caprifoliaceae.

"An Atlantic species extending into Texas. Near New Braunfels. (Lindheimer)." (Coulter). In woodlands along rivers and rocky soil. Honey yield good and of long duration. July, September.*

BUSH HONEYSUCKLE. *Lonicera fragrantissima* Lindl.

Honey suckle family. Caprifoliaceae.

Shrubby vine; cultivated species on campus; honey yield extremely early, valuable to stimulate bees if weather is favorable; also pollen. January.*

WHITE-FLOWERED HONEYSUCKLE. *Lonicera albiflora* Torr. & Gray.

Honey suckle family. Caprifoliaceae.

"Abundant throughout Western Texas and especially in the mountains west of the Pecos." (Coulter). Hunter: cultivated for ornamental purposes. Honey yield good, but few plants. May, July.*

HOUSTONIA. *Houstonia angustifolia* Michx.

Madder family. Rubiaceae.

"Throughout Texas." (Coulter). College Station: on dry soils and prairies. Bees work on it well but plants not abundant. May, July.*

BUTTON BUSH. *Cephalanthus occidentalis* L.

Madder family. Rubiaceae.

"Swamps and along streams throughout Texas. (Coulter). Hunter: along rivers and creeks. Bees work on it. July.*

BUTTON WEED. *Diodia teres* Walt.

Madder family. Rubiaceae.

"Sandy soil, low grounds of Texas to mouth of Rio Grande." (Coulter). Low

sandy soils; honey yield good and valuable as it comes during drouth. No surplus. July, August.*

BROOMWEED. *Gutierrezia Texana* T. & G.

Composite family. Compositae.

"Sterile plains throughout Texas." (Coultter). In open prairies; honey yield good in fall for winter stores; dark amber and strong flavor. September, October.*

GOLDENROD. *Solidago* sp. (?)

Composite family. Compositae.

Occurs in all parts of Texas. September. See A. B. C. 173.

***Parthenium Hysterophorus* L.**

Composite family. Compositae.

"Throughout Eastern and Central Texas. Dr. Harvard remarks that it is one of the commonest weeds about the streets of San Antonio." (Coultter). Hunter: in waste places and open town lots of which it takes possession. Honey yield good in favorable seasons when not too dry. White pollen. April, November.*

ROMAN WORMWOOD. *Ambrosia artemisiaefolia* L.

Composite family. Compositae.

"A common weed of waste grounds, extremely variable." (Coultter). Dry upland soils and waste places; probably pollen only. July, August.*

TALL RAGWEED. *Ambrosia aptera* DC.

Composite family. Compositae.

"Low grounds in Southern and Western Texas." (Coultter). Hunter: along field fences and low places. Some honey but more pollen of a resinous nature. July and August.*

GREAT RAGWEED. *Ambrosia trifida* L.

Composite family. Compositae.

"Moist river banks throughout Eastern and Central Texas." (Coultter). College: in low moist creeks and along Brazos river. Honey yield not important, but yields much pollen. July and August.*

COCKLE-BURR. CLOT BURR. *Xanthium Canadense* Mill.

Composite family. Compositae.

"Alluvial shores and waste ground." (Coultter). Hunter: along creeks, in pastures and fields; not important; furnishes pollen late in the fall. September, October.*

CONE FLOWER. NIGGER HEAD. *Rudbeckia hirta* L.

Composite family. Compositae.

"Dry and open ground throughout Texas." (Coultter). Waysides and prairies; of no importance; bees gather propolis from resinous heads sometimes. May, June.*

CONE FLOWER. NIGGER HEAD. *Rudbeckia bicolor* Nutt.

Composite family. Compositae.

"Pine woods or sandy soil, Eastern and Southern Texas." (Coultter). "In

woods and sandy soil, Arkansas to Alabama and Texas." (Small). Waysides and prairies; of no importance; bees gather propolis from resinous heads sometimes. May, June.*

COMMON SUNFLOWER. *Helianthus annuus* L.

Composite family. Compositae.

"Abundant in all valleys." (Coultter). Hunter: along roadsides and in waste fields. Honey yield sometimes good in the fall but strong in flavor. Much propolis gathered from the large composite heads of the flower and stems and leaves of the plant. May, September.*

VIRGINIAN CROWN-BEARD. *Verbesina Virginica* L.

Composite family. Compositae.

"Rich dry soil from the Mississippi and Gulf States through Texas to Mexico." (Coultter). In rich soils, lowlands and woodlands; honey yield very abundant, depending upon seasons; fine quality of honey. October.*

SNEEZE WEED. BITTER WEED. *Helenium tenuifolium* Nutt.

Composite family. Compositae.

"River bottoms, etc., extending from the Gulf and Mississippi States to Western Texas." (Coultter). College: abundant on open woodland prairies and plains of Eastern Texas. Honey yield good in favorable seasons; pollen; honey golden yellow, heavy body but very bitter, as if 50 per cent quinine and some pepper was added. June to October.*

MARIGOLD. *Gaillardia pulchella* Foug.

Composite family. Compositae.

"Extending from plains of Arkansas and Louisiana through Texas to those of Arizona and Mexico." (Coultter). Hunter: waysides and prairies. Honey yield of good quality, dark amber colored. A main yielder of surplus. May, June.*

BLUE THISTLE. *Cnicus altissimus* Willd.

Composite family. Compositae.

"Borders of woods and open ground. Common in the Atlantic States and extending into Texas." (Coultter). Hunter: scattered over open prairies; honey yield unimportant; some pollen. July, August.* "Bees working heavily on it in June, 1907 along Guadalupe River, New Braunfels, Texas, where some of the pastures were literally covered with it." (E. Scholl).

AMERICAN KNAWEED. *Centaurea Americana* Nutt.

Composite family. Compositae.

"Extending from the plains of Arkansas and Louisiana through Texas to Arizona and adjacent Mexico." (Coultter). Hunter: open prairies and pastures. Not important. July, August.*

DANDELION. *Taraxacum officinale* Weber.

Composite family. Compositae.

"Common everywhere; an introduction from Europe." (Coulter). See A. B. C. of Bee Culture. February.*

MARIGOLD. *Tagetes patula* L.

Composite family. Compositae.

Cultivated in flower gardens; honey yield not important; bees only occasionally visiting it. July.*

NARROW-LEAFED IRON WOOD. *Bumelia angustifolia* Nutt.

Appodilla family. Sapotaceae.

"Valley of the lower Rio Grande." (Coulter). Specimen sent from the Nueces River. (Cotulla). June.*

MEXICAN PERSIMMON. *Diospyros Texana* Scheele.

Ebony family. Ebenaceae.

"Woods along streams, Matagorda Bay to the Concho River and southward." (Coulter). "Mexicans call it "Chapote," also known as "black persimmon." Often found on rocky mesas but thrives best in canyons and on the edges of ravines." (Harvard). Hunter: in woodlands: honey yield abundant, not harmed by showers on account of bell-shaped flowers. April.*

PERSIMMON (COMMON). *Diospyros Virginiana* L.

Ebony family. Ebenaceae.

"A common tree of the Atlantic States. Extending into Texas to the valley of the Colorado." (Coulter). Throughout East Texas; honey yield good, not long and trees not abundant. Bell-shaped blossoms are protected in rain. April.*

CALIFORNIA PRIVET. *Ligustrum vulgare* L.

Olive family. Oleaceae.

"Thickets and on roadsides, Ontario to Pennsylvania and North Carolina." (Small). Ornamental shrub cultivated for hedges, etc., honey yield good; flowering trees scarce, trimmed and kept down in hedges. April, May.* "A good flow at College Station in 1906." (E. Scholl).

SILVER BERRY. *Elaeagnus argentia*, Pursh.

Oleaster family. Elaeagnaceae.

College Station; cultivated ornamental on campus. Honey yield abundant in narrowly funnel-shaped blossoms hanging downward. Nectar runs to mouth of flower. Protected from rains. Corolla 8mm. deep. Long-tongue bees would be of advantage. October, November.*

SWEET OLIVE. *Elaeagnus angustifolia* L.

Oleaster family. Elaeagnaceae.

College Station: cultivated ornamental shrub on campus; honey yield good; bees work on blossom. April.*

SILK WEED. *Asclepias* sp.

Milk weed family. Asclepiadeae.

Beeville; on plains and prairies. Honey yield good but pollen attaches to bee's feet and cripples them. March.*

DENSE-FLOWERED PHACELIA. *Phacelia congesta* Hook.

Water-leaf family. Hydrophyllaceae.

"Throughout Texas." (Coulter). Rich places and moist woods; honey yield sparing. April, June.*

Phacelia glabra Nutt.

Water-leaf family. Hydrophyllaceae.

"Low prairies Arkansas and East Texas." (Coulter). On prairies Eastern Texas. March, April.*

BORAGE. *Borago officinalis* L.

Borage family. Boragineae.

College: cultivated; honey yield good; bees working busily on it during June. Old stalks die down in July and large lower leaves protect root stock during severe drouth and sprout out for bees to work on bloom in August. June, July.*

MORNING GLORY. *Ipomoea Caroliniana* Pursh.

Convolvulus family. Convolvulaceae.

Most common in cultivated fields. Honey yield light, pollen. June to November.*

NIGHT-SHADE. *Solanum rostratum* Dunal.

Night-shade family. Solanaceae.

"Plains throughout Texas." (Coulter). Hunter: waste lands, prairies and roadsides. Honey very little; some pollen. May, October.*

TRUMPET CREEPER. TRUMPET FLOWER. *Campsis radicans* (L.) Seem.

Bignonia family. Bignoniaceae.

"Moist soil, extending from Atlantic and Gulf States into Texas and common in cultivation." (Coulter). Cultivated and along river bottoms: honey yield of little importance; external nectar glands; pollen from flowers. July to October.*

LARGE-FLOWERED VERBENA. *Verbena urticifolia* L.

Vervain family. Verbenaceae.

"Waste or open grounds, extending from the Atlantic regions through Texas to tropical America." (Coulter). College Station: in waste open ground. April, August.*

BLUE VERVAIN. *Verbena xutha* Lehm.

Vervain family. Verbenaceae.

Extending from Louisiana through Texas to Southern California and

Mexico." (Coulter). College: in sandy soils, honey yield sparing and scattering throughout its season. April, August.*

SPATULATE-LEAFED FOG-FRUIT. *Lippia nodiflora* Michx.

Vervain family. Verbenaceae.

"Low ground extending from the Gulf States to Western Texas." (Coulter). In moist places, rivers and creeks; honey yield very light and of little importance. July.*

WHITE BRUSH. *Lippia ligustrina* Britt.

Vervain family. Verbenaceae.

"Common on rocky slopes throughout Texas." (Coulter). "Foliage eaten by cattle, sheep and goats." (Harvard). All over Southwest Texas; honey yield very heavy of fine quality but very short duration, only a few days; blooms after each rain during season. May to November.*

LANTANA. *Lantana Camara* L.

Vervain family. Verbenaceae.

"Extending from the Gulf States through Southeastern Texas to tropical America." (Coulter). On light soils of Southwest Texas; unimportant; bees seldom on it. April, October.*

FRENCH MULBERRY. *Callicarpa Americana* L.

Vervain family. Verbenaceae.

"Rich or moist grounds, extending from Gulf States to Southern Texas." (Coulter). Brazos bottoms, College; rich soil in woods, abundant: honey yield only fair. May.*

ROEMER'S SAGE. *Salvia Roemeriana* Scheele.

Mint family. Labiatae.

"In light fertile soils, Western Texas." (Coulter). Hunter: rich soils in forests. Unimportant as a honey plant; not abundant; deep corollas. May, June.*

BLUE SAGE. *Salvia azurea* Lam.

Mint family. Labiatae.

"From Gulf States to extreme Western Texas." (Coulter). Hunter: dry soil and waste places; corolla deep and visited much more frequently by bumble bees than honey bees. April, October.*

CATNIP. *Nepeta cataria* L.

Mint family. Labiatae.

Cultivated on Apiary Experimental Plats, 1904; only a few plants grew and bloomed. A few bees visited it. Soon died. July.*

WILD BERGAMONT. *Monarda fistulosa* L.

Mint family. Labiatae.

"Dry soil throughout Texas, etc." (Coulter). College: along banks of ravines. Honey yield good but plants not abundant. May, July.*

HORSE-MINT. *Monarda clinopodioides* Gray.

Mint family. Labiatae.

"Eastern and Southern Texas." (Coultter). Prairies and waste land; honey yield abundant; one of the main yielders; honey compared to basswood in flavor. May, June.*

HORSE-MINT. *Monarda punctata* L. (See frontis-piece).

Mint family. Labiatae.

"Sandy ground extending from the Atlantic regions to Southern and Western Texas." (Coultter). In open prairies and waste land; honey yield abundant; one of the main crop yielders; honey compared with basswood. May, July.* "A good yielder in Brazos bottoms, College Station, Texas, in 1907, June." (E. Scholl).

DRUMMOND'S SKULL-CAP. *Scutellaria drummondii* Benth.

Mint family. Labiatae.

"Common throughout Texas in damp rich soil." (Coultter). "On prairies, Kansas to Texas." (Small). Hunter: waste places in fields and prairies. Honey yield abundant in spring; much visited by bees. April, May.*

COMMON HOARHOUND. *Marrubium vulgare* L.

Mint family. Labiatae.

"A common escape in waste or open ground." (Coultter). Hunter: most all parts of the South; fertile places; fence corners and pens; honey yield abundant; steady flow; dark amber colored. Claimed bitter by some. February, July.*

COLEUS. *Coleus blumei* Benth.

Mint family. Labiatae.

College; ornament for borders, etc. Honey yield of no importance. Bees gather pollen from it only occasionally. July.*

COMMON PIGWEED. *Amaranthus retroflexus* L.

Amaranth family. Amaranthaceae.

"Throughout Texas." (Coultter). Waste lands and fields; honey yield of no importance; some pollen. July, September.*

THORNY AMARANTH. *Amaranthus spinosus* L.

Amaranth family. Amaranthaceae.

"From Tom Green County to Laredo." (Coultter). Annual weedy herbs. In waste places and cultivated soils presumably pollen only; not important. August.*

MADEIRA VINE. *Anredera scandens* (L.) Moq.

Goosefoot family. Chenopodiaceae.

"From the upper Pecos to the lower Rio Grande, (Ringgold)." (Coultter). Hunter. Texas; cultivated for shade on verandas; honey yield fair, bees work on it industriously, but the plants are scarce. May, September.*

JAPANESE BUCKWHEAT. *Fagopyrum fagopyrum* (L) Karst.

Buckwheat family. Polygonaceae.

Cultivated in fields in a small way; honey yield good on favorable moist mornings, not in dry weather. Honey very dark and strong in flavor; not important for bees in Texas. June, July.* "A good yielder to bridge over from early spring flower to cotton bloom at College Station, Texas." (E. Scholl).

AMERICAN MISTLETOE. *Phoradendron flavescens* Nutt.

Mistletoe family. Loranthaceae.

"From Eagle Pass to Central Texas. Reported on *Ulmus*, *Prosopis*, *Quercus*, etc." (Coulter). Honey yield abundant and also pollen, very valuable for early brood rearing. The first source for bees in the season. December, January.* "Blooms in January and February if weather is not too cold, yields pollen and honey." (Milam, D. C., Uvalde, Texas).

SPURGE. *Euphorbia marginata* Pursh.

Spurge family. Euphorbiaceae.

"Throughout the valleys of the Pecos and Rio Grande." (Coulter). Along valleys and lowlands; honey yield of no importance. June, October.*

SONORA CROTON. *Croton Sonorae* Torr.

Spurge family. Euphorbiaceae.

"On rocky bluffs of the upper Llano." (Coulter). Hunter: open places in woodland bluffs; honey yield only light, but comes in dearth and good if rains; pollen. July, August.*

CROTON CAPITATUS MICHX.

Spurge family. Euphorbeaceae.

"From the Pecos to Southern and Central Texas." (Coulter). Road-sides and prairies; unimportant; some pollen when no other bloom. July, September.* "Plenty of pollen at College Station in August, 1907." (E. Scholl).

TEXAS CROTON. *Croton Texensis* Muell.

Spurge family. Euphorbeaceae.

"From the staked plains to Corpus Christi." (Coulter). Hunter: road-sides and fields; honey yield very light, not important. June, August.*

ONE-SEEDED CROTON. *Croton monanthogynus* Michx.

Spurge family. Euphorbeaceae.

"Central and Southern Texas." (Coulter). Hunter: open prairies and pastures; honey yield fair, but unimportant. May, June.

CASTOR-OIL PLANT... *Ricinus communis* L.

Spurge family. Euphorbiaceae.

"Cultivated extensively for ornament and sparingly escaped in Missouri and southwestward to Central Mexico." (Coulter). Planted for ornamental

purposes; honey yield good in favorable seasons; pollen; has glands at base of leaves. March, April.*

AMERICAN OR WHITE ELM. *Ulmus Americana* L.

Nettle family. Urticaceae.

"Extending westward to the streams of Southern and Central Texas." (Coultter). College: along moist creeks and streams; honey yield good but not very plentiful. August.*

WINGED ELM or WAHOO. *Ulmus alata* Michx.

Nettle family. Urticaceae.

"On streams extending to the valley of the Trinity." (Coultter). Tree with corky winged branches, along streams and low soils in woods; honey yield good sometimes giving surplus; much pollen; honey of amber color and strong characteristic aroma. August, September.*

GRANJENO. *Celtis pallida* Torr.

Nettle family. Urticaceae.

"Very common on all mesas and foot-hills of Western and Southern Texas." (Coultter). Beekeepers value it as an important plant in Southwest Texas. March, April.*

HACKBERRY. *Celtis Mississippensis* Bosc.

Nettle family. Urticaceae.

"Extending to Central Texas." (Coultter). In woodlands; much planted for shade; honey yield fair, valuable for pollen in the spring. March, April.*

HACKBERRY. *Celtis occidentalis* L.

Nettle family. Urticaceae.

"Very common in the valleys of Western and Southwestern Texas, 'Palo Blanco'" (Coultter). In woods and valleys, planted for shade; honey yield fair, much pollen, valuable for early brood rearing. March, April.*

OSAGE ORANGE. *Toxylon pomiferum* Raf.

Nettle family. Urticaceae.

"Near waters from Eastern to Central and Southern Texas. Extensively used for hedges." (Coultter). Planted for hedges and timber; honey yield not important on account of scarcity of trees. April.*

PECAN-NUT. *Hicoria Pecan* (Marsh) Britt.

Walnut family. Juglandaeae.

"Extending from the Mississippi States to the streams of Central and Southwestern Texas as far west as Fort Concho." (Coultter). Along rivers and creeks; honey yield where plentiful; valuable for brood rearing on account of its pollen. March.*

MOCKERNUT. WHITEHEART HICKORY. *Hicoria alba* (L) Britt.

Walnut family. Juglandae.

"Extending to the Valley of the Brazos." (Coulter). College Station, Brazos River. Abundant in the sandy valley land; some honey and pollen. March.*

BLACK WALNUT. *Juglans nigra* L.

Walnut family. Juglandae.

"Extending from the east to the valley of the Colorado and San Antonio." (Coulter). In forests, along creeks and rivers; some honey, more pollen; good to stimulate bees. March.*

POST OAK. *Quercus minor* (Marsh) Sarg.

Oak family. Cupuliferae.

"Sandy or sterile soils, extending from the Atlantic States to Central Texas." (Coulter). In sandy land sections of the country; honey yield inferior but with large amount of pollen; good for early brood rearing. March, April.*

LIVE OAK. *Quercus Virginiana* Mill.

Oak family. Cupuliferae.

"Common along water courses extending from the Gulf States through Southern and Western Texas to the mountains of New Mexico." (Coulter). Hunter: In forests, honey yield good, poor in quality, dark; valuable for early brood rearing; much pollen. March.*

RED OAK. *Quercus rubra* L.

Oak family. Cupuliferae.

"Extending to the valleys of the Colorado and San Antonio. Not abundant and timber poor." (Coulter). Along creeks and low-lands; scarce; pollen. March, April.*

SWAMP, SPANISH, or PIN OAK. *Quercus palustris* Du Roi.

Oak family. Cupuliferae.

"Low grounds extending to the valley of the Colorado." (Coulter). Forests; good honey yield and also pollen; valuable for brood rearing. March, April.*

WATER OAK. *Quercus aquatica* Walt.

Oak family. Cupuliferae.

"Wet grounds extending from the South Atlantic States to the valley of the Colorado." (Coulter). College: along creeks and streams; scarce and scattering; pollen. March.*

BLACK JACK or BARREN OAK. *Quercus nigra* L.

Oak family. Cupuliferae.

"Extending to the valleys of the Colorado and Nueces." (Coulter). In post oak woods in sandy sections of the country; early pollen. March, April.*

BLACK WILLOW. *Salix nigra* Marsh.

Willow family. Salicineae.

"On banks bending over the water of most streams of Western Texas." (Coultter). Along rivers and creeks; honey yield good and valuable for brood rearing, and for abundance of pollen. February to April.*

COTTONWOOD. NECKLACE POPLAR. *Populus monilifera* Ait.

Willow family. Salicineae.

"Extending into the mountains of Western Texas." (Coultter). Lowlands and along streams; some honey but more pollen; valuable for early brood rearing. March.*

GREEN BRIAR. CAT BRIAR. *Smilax bona-nox* L.

Lily family. Liliaceae.

"Abundant along the Rio Grande and Pecos." (Coultter). "In thickets Massachusetts to Florida and Texas. Stretch berry." (Small). In thickets; honey yield fair; bees work on it well, but of short duration. April.*

ASPARAGUS. *Asparagus officinalis* Linn.

Lily family. Lilaceae.

"In waste places and salt marshes. New Brunswick to Georgia and Louisiana. Naturalized from Europe." (Small). Cultivated for its young shoots for food; honey yield of no importance, but good for pollen. March, April.*

VIRGINIAN SPIDERWORT. *Commelina Virginica* L.

Spiderwort family. Commelinaceae.

"Moist thickets and borders of rivers southern and southwestern Texas." (Coultter). Hunter: moist fence corners and open woods; honey yield unimportant, valuable for pollen. April, May.*

SPIDERWORT. *Tradescantia gigantea* Rose.

Spiderwort family. Commelinaceae.

"On plains or prairies, Texas." (Small). New Braunfels; in and about hedges of woodlands; honey yield unimportant but good for early pollen. March, May.*

SORGHUM. *Sorghum vulgare* Pers.

Grass family. Gramineae.

Hunter: cultivated for hay crops, etc., valuable for abundant yield of pollen; some honey. June, August.*

INDIAN CORN. *Zea mays* L.

Grass family. Graminae.

"Cultivated in fields for grain; honey yield not positively known; valuable for its pollen in abundance. May, June.*

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